Apache Technologies

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Operator's Manual

Apache Technologies

THUNDER® Laser Detector

Model 54 - Exterior

Model 56 - Interior

THUNDER® Laser Detector

Thank you for purchasing an Apache Technologies, Inc. product. Your THUNDER® Laser Detector is a premium quality tool that has been designed and manufactured to provide years of precise and reliable performance.

This manual is an important part of your purchase as it will familiarize you with the unit and explain the numerous features that have been designed into it. Please read this manual thoroughly before using your THUNDER Laser Detector.

Please contact your Apache dealer or the Apache factory should you have questions regarding specific applications or if you require additional information.

IMPORTANT: Fill out the Warranty Registration Card and return it to Apache Technologies, Inc.

Please record your THUNDER Laser Detector information below for future reference.

MODEL / SERIAL NO: _____/_____

DATE OF PURCHASE: _____

PURCHASED FROM: _____

_____

PHONE: _____

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P/N ATI-230048 Rev C

General Description

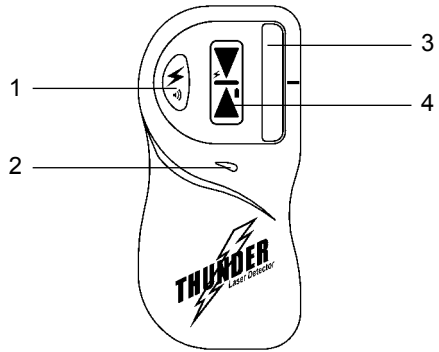
The THUNDER family of hand-held laser detectors is designed to receive and indicate reference elevation information from rotating laser levels.

Model 54 is designed for general outdoor use. It has a Liquid Crystal Display (LCD) on the front that gives a visual indication of High, Low or On-grade. A beeper also emits three distinct audible tones for High, Low or On-grade. A general purpose rod clamp is included with the Model 54.

Model 56 is designed for interior applications with visible beam rotating lasers. It may also be used with exterior invisible rotating lasers. It uses Light Emitting Diodes (LED's) on the front for grade indicators which display red for high or low and green for on-grade. A beeper also emits three distinct audible tones for each of the three grade channels. A magnet is built into the top of the housing to attach it to ceiling grids. A lanyard is included as a drop protection device.

The THUNDER Detectors have been specifically designed for use in harsh, loud construction environments. Impact resistant housings, recessed windows, waterproof design, attached battery doors, durable battery contacts, and a high volume beeper are incorporated into every detector.

THUNDER Laser Detector Model 54 - Exterior



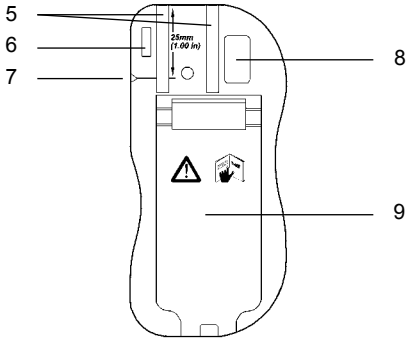
1. Power Switch and Loudness Selector - turns the unit on and off and selects volume level.

2. Beeper Output - emits distinct sound for High, Low, and On-grade elevations.

3. Laser Reception Window - protects the photocells which detect the laser signal.

4. LCD Window - visually indicates the detectors position relative to the laser beam. Also indicates power on and low battery warning.

THUNDER Laser Detector
Model 54 - Exterior



5. Clamp Slots - two dovetail slots accept the rod clamp.

6. Tab Slot - accepts clamp tab and locks clamp in place.

7. Offset Marking Notch - used for transferring reference marks. The top of the detector is 1.0” (2.5 cm) above the laser On-grade location.

8. Serial Number Label.

9. Battery Door - compression sealed battery compartment houses 2 x “AA” batteries and ID label. Use a coin to open the door latch and insert batteries noting the plus (+) and minus (-) terminal diagram on the housing.

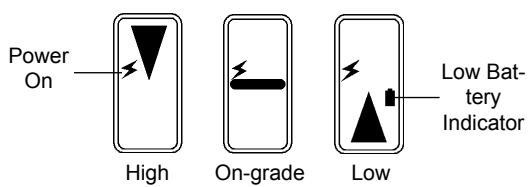
THUNDER Laser Detector
Model 54 - Operation

Press the power switch once to turn the detector on. The beeper will sound and all the symbols on the LCD will be visible. The power symbol will be displayed to indicate the unit is on. Pressing and releasing the power switch again will toggle through volume selections of off, low, and high. Depressing and holding the power switch for approximately 2 seconds will turn the detector off. The unit will automatically shut off if it is not used for 30 minutes.

The photocells that detect the laser beam are located behind the reception window. This window must be directed toward the laser to receive the beam.

When a beam is received, the LCD will visually indicate the detector’s position relative to the laser beam. A low battery warning symbol will appear when approximately one hour of battery life remains.

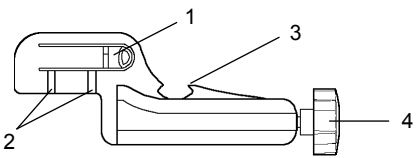
LCD Grade Indication



THUNDER Laser Detector
Model 54 - Operation

When a laser beam is received, the beeper will also emit audible signals. Fast beeping means the detector is too high, continuous is on-grade, and slow is too low.

A **Model 52** general purpose clamp is included with the Model 54 to attach the detector to grade rods. To secure the clamp to the detector, align the two dovetails of the clamp to the grooves on the back of the detector. Slide the clamp down onto the detector. A snapping action will ensure the clamp is securely attached. To remove the clamp, depress the thumb release tab and slide the clamp upward.



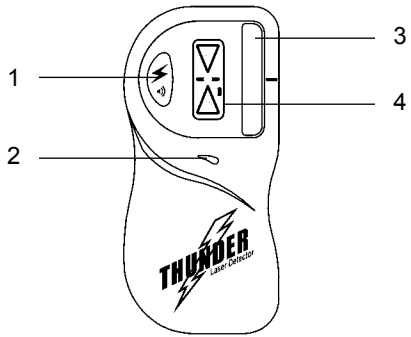
1. Clamp lock tab and thumb release - tab for securing and thumb release for removing clamp from detector.

2. Dovetail slots - attaches clamp to the back of detector.

3. Reference Indicators - points are aligned with detector On-grade for grade rod readings.

4. Clamping Screw - tightens the clamp onto rods and staffs by moving the traveling jaw.

THUNDER Laser Detector
Model 56 - Interior



1. Power Switch and Loudness Selector - turns the unit on and off and selects volume level.

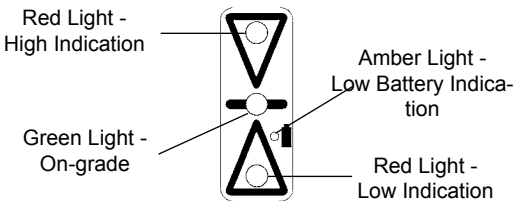
2. Beeper Output - emits distinct sound for High, Low, and On-grade elevations.

3. Laser Reception Window - protects the photocells which detect the laser signal.

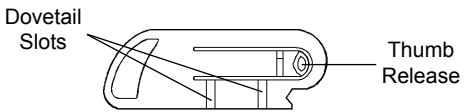
4. LED (Light Emitting Diode) Display - visually indicates the detectors position relative to the laser beam. Also indicates power on and low battery warning.

THUNDER Laser Detector Model 56 - Operation

The operation of the Model 56 is similar to the Model 54 (Please refer to page 3). When a beam is received, the LED will visually indicate the detector's position relative to the laser beam.



The center green LED will flash to indicate the detector is on. The amber LED next to the battery symbol will appear when approximately one hour of battery life remains.



A lanyard clip attaches to the detector in the same manner as the Model 52 grade rod clamp. The lanyard may be attached to the clip and used as a detector drop protection device.

Maintenance and Safety

☞ **CLEANING:** Do not wipe dust or dirt off the detector reception window or display windows with a dry cloth or other abrasive material as scratching could occur, reducing visibility through these windows. A soft cloth and mild soap and water are effective. The unit may be submerged or sprayed with a low pressure water hose if necessary. Do not use any other fluids other than water or glass cleaner, as they may attack polymer components.

☞ **TRANSPORT:** Use the original carton or a laser instrument case to transport the detector.

☞ **STORAGE:** If the detector will not be used for a month or more, remove the batteries.

☞ **BATTERIES:** It is recommended to use only high quality alkaline batteries.

☞ **INTENDED USES:** The laser detector is designed and suitable for detecting a rotating laser beam.

⚠ **PROHIBITED USES:**
- Operation without instruction.
- Operation other than the intended uses.
- Opening the detector, except the battery door.
- Modification or conversion of the detector.
- Use of accessories from other manufacturers.

⚠ **PRECAUTIONS:**
- The person in charge of the detector must understand the instructions in this manual and ensure other users do also.
- Periodically carry out test measurements, particularly after the detector has been subjected to abnormal use and before and after important measurements.

THUNDER Laser Detector
Model 54 - Exterior - Specifications

Detection Accuracy (Typical) Model 54 Model 54-N	 ±0.080” (±2.0 mm) ±0.030” (±0.75 mm)
Display	LCD (arrow/bar/arrow)
Sealing	Dustproof, Waterproof
Detection Range (dependent on laser)	Up To 500 ft. radius (150 m)
Mounting	Conventional Clamp
Beeper Volumes @ 8 in. (20 cm)	High: 100+ dBA Low: 65 dBA
Display Channels	3
Window Capture Height	1.5 in. (38 mm)
Reception Angle	± 45°
Marking Notch	1.0 in. (25 mm) Photocell side only
Low Battery Indicator	Yes (LCD Symbol)
Battery Life	100+ hours continuous
Battery Size	2 x “AA”
Automatic Shut-Off	30 minutes
Operating Temperature	-4°F to +140°F (-20°C to +60°C)

**Specifications subject to change without notice*

THUNDER Laser Detector
Model 56 - Interior - Specifications

Detection Accuracy (Typical)	±0.030” (±0.75 mm)
Display	LED’s (red/green/red)
Sealing	Dustproof, Waterproof
Detection Range (dependent on laser)	Up To 300 ft. radius (90 m)
Mounting	Magnet Mount (top), Lanyard
Beeper Volumes @ 8 in. (20 cm)	High: 100+ dBA Low: 65 dBA
Display Channels	3
Window Capture Height	1.5 in. (38 mm)
Reception Angle	± 45°
Marking Notch	1.0 in. (25 mm) Photocell side only
Low Battery Indicator	Yes (Amber LED)
Battery Life	75+ hours continuous
Battery Size	2 x “AA”
Automatic Shut-Off	30 minutes
Operating Temperature	-4°F to +140°F (-20°C to +60°C)

**Specifications subject to change without notice*

Warranty

Apache Technologies, Inc. THUNDER laser detectors are warranted to be free of defects in material and workmanship for a period of two years. This warranty period is twenty-four months from the date the product is delivered from the dealer to the purchaser or is put into service by a dealer as a demonstration unit or rental unit.

A Warranty Registration Card must be filled out properly and on file with Apache Technologies, Inc. or proof of purchase presented to obtain warranty service.

Any evidence of misuse, alteration, or an attempt to repair products by unauthorized personnel, or use of parts other than those provided by Apache Technologies, Inc. automatically voids the warranty. Competitor purchased and tested units are excluded from this warranty.

The user of the product is expected to follow all operating, maintenance and care instructions.

Apache Technologies, Inc. liability under this warranty is limited to repairing or replacing any product returned to its factory for that purpose. The foregoing states the entire liability of Apache Technologies, Inc. regarding the purchase and use of its product and they shall not be held responsible for any consequential loss or damage of any kind.

This warranty is in lieu of all other warranties, expressed or implied, and constitutes all of Apache Technologies, Inc. liability with respect to merchandise sold by it.

CE DECLARATION OF CONFORMITY

Application of Council Directive:
89/336/EEC

Manufacturer's Name:
Apache Technologies, Inc.

Manufacturer's Address:
8261 State Route 235
Dayton, OH 45424 USA

European Representative Address:
Apache Technologies Europe GmbH
Langenberger Str. 590
D-45277 Essen, Germany

Model Number(s):
Thunder Model 54, 56

Equipment Type / Environment:
ITE / residential, commercial, light industrial

Harmonized Standards Applied:
Electromagnetic Compatibility (EMC),
EN 61000-6-1: 2001; EN 61000-4-2: 1995
EN 61000-4-3: 1995; EN 61000-4-8: 1995
EN 61000-6-3: 2001; EN 55011: 1998

We herewith declare, in exclusive responsibility, that the instrument conforms to the above mentioned directive including their amendments up to the date below.

September 2003

Robert G. Conner, President

Notice to Our European Union Customers

For product recycling instructions and more information, please go to: www.trimble.com/environment/summary.html

Recycling in Europe

To recycle Trimble WEEE, call: +31 497 53 2430, and ask for the "WEEE associate," or

mail a request for recycling instructions to:
Trimble Europe BV
c/o Menlo Worldwide Logistics
Meerheide 45
5521 DZ Eersel, NL